

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>OPA2403PC</b>	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. <b>PCT/JP2004/007323</b>	International filing date (day/month/year) <b>21.05.2004</b>	Priority date (day/month/year) <b>26.05.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>YOSHINO GYPSUM CO., LTD.</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/007323

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (Rule 12.3 and 23.1(b))  
☐ publication of the international application (Rule 12.4)  
☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

nos. \_\_\_\_\_ as originally filed/furnished

nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19

nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

sheets \_\_\_\_\_ as originally filed/furnished

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/007323

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>2-21</u>	YES
	Claims	<u>1</u>	NO
Inventive step (IS)	Claims	<u>2, 4, 7-21</u>	YES
	Claims	<u>1, 3, 5, 6</u>	NO
Industrial applicability (IA)	Claims	<u>1-21</u>	YES
	Claims	<u></u>	NO
2. Citations and explanations (Rule 70.7)			
Document 1: JP 8-25342 A (Yoshino Gypsum Co., Ltd.), 30 January 1996			
Document 2: JP 2000-6137 A (Yoshino Gypsum Co., Ltd.), 11 January 2000			
Claim 1			
<p>Document 1 (claims 1 and 2) cited in the international search report discloses a mixing and stirring device for use in the manufacturing of gypsum board comprising a cylindrical unit having an annular wall around the periphery thereof and a slip supply pipe connected to the slip supply port provided in the cylindrical unit by means of a hollow connection part, wherein bubbles for adjusting the volume are fed into the slip in the outer peripheral region of the cylindrical unit upstream of the supply port and to the slip fed to the outside from the supply port. In the light of this disclosure, providing a bubble feeding port in the annular wall and/or the hollow connection part would be merely a matter of design to a person skilled in the art and this feature would not exhibit an effect that would not be expected of a person skilled in the art (see Box VIII regarding the effect).</p>			

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

Therefore, the present invention lacks novelty and does not involve an inventive step.

Claims 3, 5 and 6

Document 2 cited in the international search report discloses the feature of providing a slit in the slip discharge port of a mixing and stirring device for use in the manufacturing of gypsum board. Based on this disclosure, it would be easy for a person skilled in the art to modify the design and provide a slit in the slip supply port disclosed in document 1.

Claims 2, 4 and 7-21

The feature wherein bubbles are supplied to the gypsum slurry at the annular wall of the mixing and stirring device or at the hollow connection part of the slurry supply pipe and thereafter, the slurry and bubbles are made to flow in a rotational manner in the slurry supply pipe and mixed by means of the shearing force, appears to be neither disclosed nor suggested in any prior art document.

Therefore, the invention set forth in these claims involves an inventive step.

## Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

From the disclosure in the description (page 11), the method for mixing and stirring executed by the mixing and stirring device of the present invention appears to produce its effect through the constitution of a slurry adjustment process and a process in which bubbles are supplied to the slurry and mixed. In the latter process, a shearing force is applied to the slurry immediately after bubbles have been supplied thereto.

Moreover, in the "mixing and stirring device" disclose in claim 1, the arrangement of the supply port for the bubbles, namely the structure for supplying the bubbles is specified, but there is no specification concerning a structure for applying a shearing force to the slurry, namely a structure of mixing in the bubbles.

Therefore, the effect of the invention set forth in claim 1 is not fully supported by the description.

In embodiment 1, which compares comparative examples 2 and 3 in fig. 27 of the present application (see document 1 cited in Box V.), the mixing of the bubbles takes place inside the slurry supply pipe (see fig. 2-7) and, therefore, supports the effect of the invention disclosed in claim 2, but does not appear to support the effect of the invention set forth in claim 1.